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Dealers Discuss Risks of Equipment Chipping (Tuning)

By [Kieran Brett](#) posted on May 24, 2019 | Posted in [Manufacturer & Dealer Issues](#)
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Editor's Note: During a recent conversation with a dealership executive, he discussed a situation while working with a customer on a sale. Just before they got to the shake hands on the deal phase, the dealer discovered that the customer's equipment trade-in had had its emissions system disabled. The dealer decided to nix the deal he had been working on for quite some time because he didn't want the liability that could come with such engine/emission system modifications.

While we haven't head of many of these instances taking place in the U.S., in Canada it has become a major problem. "Chipping" is how Canadian dealers refer to such modifications. U.S. dealers and manufacturers often refer to it as "Tuning."

The following article originally appeared in Canadian Equipment Dealer magazine, published by the Western Equipment Dealers Assn. It is republished here with permission. Carolyn Sinclair, WEDA's marketing communications director, has launched a major information initiative to help dealers who are confronting this issue. You can find more information at <https://www.westerneda.com/advocacy/equipment-chipping-canada/>.

More and more farm equipment in Canada is coming in for service or trade that's had its software tuned or emissions systems removed by a third party with the intention of boosting performance. In this special *Canadian Equipment Dealer* report, dealers were asked to offer their perspective on this issue.

On a recent summer day, Don Henry found himself in a tough situation — delivering some expensive news to a long-time farm customer.

This customer's machine had broken down and needed a quick repair to get back in the field. The trouble was, this piece of equipment had been chipped. The farmer was promised increased horsepower while burning less fuel, but what he actually got was engine failure — requiring a repair now

Chipping or Tuning. What's in a name?

As farm and heavy equipment gets more refined, more of the components are run with chips and modules. Companies promising custom tunes for enhanced performance or better fuel economy on equipment call these services by many different names. These include:

- diesel chipping or diesel tuning

not covered by the original manufacturer's warranty.

"We've seen issues on three customers' engines as a result of chipping or tuning," says Henry, sales development manager for South Country Equipment in Saskatchewan. "We had an engine failure in a combine where chipping had been done and the invoice was \$100,000. That's a really tough pill to swallow for everybody."

Welcome to the front lines of equipment chipping and tuning in Canada.

Chipping or tuning is a process that occurs where an engine built to be within a certain specification of horsepower is tuned to exceed that horsepower range. This can cause engines to overheat, other parts to experience added wear and tear outside what they are designed for and can ultimately result in high repair bills.

Understanding the issue

While most Canadian dealers won't perform chipping or tuning in their shops, dealers are seeing these services grow every year, offered by third party companies. Some chippers are sophisticated technology companies. Others could be a guy with a laptop and a pickup truck.

It's understandable that farmers dealing with high input costs, who are promised a quick way to get more horsepower or better fuel economy out of a machine, might take someone up on that. Henry warns that there are real risks in going down that road.

The risks involved with modifying a precision piece of equipment are multifaceted. Not the least of it is that if the equipment is still on original warranty, changing computer chips or tuning the components voids the manufacturer's warranty. Case closed.

"We don't always know it's been done until later, when the equipment comes in for something else, and we find out that it's been chipped... There is a lot that goes into these computer programs, and these chippers are not getting their information from the manufacturer. There's more to it than just boosting up the horsepower..." — Terry Swystun, President & CEO, Full Line Ag Sales Ltd., Saskatoon, Sask.

Henry explains that many producers don't know that chipping or tuning immediately voids the equipment manufacturer's warranty. If they've been told by the chipper that there is a warranty involved, producers need to understand: that's the chipper's warranty only and not the OEM.

"They're not going to warranty an engine failure," Henry explains. "They'll warranty their product but not take responsibility if the engine fails. The manufacturer states that any modification voids the warranty. We need to make our customers aware that this is a real possibility. We've lived it on three occasions now."

- chipping or chip tuning
- ECM or ECU tuning
- ECU remapping
- performance tuning
- fuel economy tuning
- tractor tuning
- calibrated power
- emission deletes
- DPF or DEF Delete or EGR delete kits

Regardless of what it's called, there are significant consequences to changing the manufacturer's settings on farm equipment.

Emission deletion or modification are illegal and subject to fines

While changes to the engine void the manufacturer's warranty, other modifications — specifically those made to equipment's Diesel Exhaust Fluid or DEF emissions systems — are illegal and could result in hefty fines.

Vehicle emission standards in Canada have been harmonized with the United States' Environmental Protection Agency (EPA) standards. The EPA Clean Air Act prohibits anyone from tampering with an emission control device on a motor vehicle by removing it or making it inoperable.

Dealers selling new engines are treated the same as manufacturers under EPA regulations and are therefore held to the same standards as manufacturers under the Clean Air Act. To help dealers understand the ins and outs of emissions standards, and how to avoid penalties, the Western Equipment Dealers Assn. (WEDA) has prepared the document "EPA Compliance Guidelines for Equipment Sale, Repairs and Trade" that can be found on the WEDA website at www.westerneda.com/advocacy/osha-epa-regulations.

Kevin Rossler, sales manager for Markusson New Holland near Regina, Sask., would be the first to admit that issues with emissions systems were present early on as different tiers of controls were phased in throughout North America.

"As it progressed into the Tier-Four emissions, or DEF systems, there were early problems in agricultural equipment," notes Rossler. "If DEF is not stored correctly or is mismanaged, it can cause quite an issue. An error code from a sensor failing at seeding time can shut you down and that's pretty frustrating. That caused some operators to want to get rid of the DEF systems, or get DEF delete kits to get away from using it."

After almost two decades on the service side of the business, Rossler has seen the DEF technology get significantly better. DEF systems are no longer causing big issues anymore. He says farmer talk around this issue has been so pervasive that some producers still opt to remove these emissions reducing devices and reprogram the engine for better performance, even though this measure is rarely needed.

From Rossler's point of view, with an action that's unnecessary, plus the fact that it's illegal, modifying or removing DEF systems should not be done.

"I'm not sure how some companies can advertise removing these DEF systems because the federal government says it's illegal," says Rossler. "The problem is that the federal government has made it the provincial government's responsibility to police it, and the provinces say they don't have the manpower to police it."

According to Rossler, emissions violations like this are pursued more rigorously in the U.S. Even without the risk of aggressive enforcement in Canada, producers should know that major damage can occur when removing or modifying emissions systems. As Rossler explains, rendering any part of the emissions system inactive can cause these or other parts to fail and the potential for repairs can be substantial.

"When we're taking these pieces of equipment in on trade, these modifications will need to be reversed and these parts can be very expensive," he explains. "There are some components in the emissions system that can be \$5,000-\$7,000, or even more. If I have to replace that part on that trade in, that's not something the next buyer of that equipment is getting any value for."

"We've seen issues on three customers' engines as a result of chipping or tuning... We had an engine failure in a combine where chipping had been done and the invoice was \$100,000. That's a really tough pill to swallow for everybody..." — Don Henry, Sales Development Manager, South Country Equipment, Emerald Park, Sask.

From Rossler's time as a journeyman service technician, a service manager and working on the sales side of the agricultural equipment business, he's seen chipping problems many times. His advice on chipping, tuning or DEF deletes? Don't do it.

Rossler relays a story about a customer who asked their technician to come out to work on his tractor. This was a highly competent journeyman technician who had worked on that tractor for years. When he arrived onsite, he couldn't get hooked up to the tractor's system, despite trying two different computers. It all became clear once his customer told him he'd had a custom tune done on the tractor.

"Unfortunately, we had to walk away from it," says Rossler. "That operation was down for days because he had to get the guy who tuned it back to troubleshoot it. Let's face it, a lot of these fellows putting custom tunes on agriculture equipment are not qualified technicians."

Even off warranty, it's still not a good idea

For Terry Swystun, president and CEO of Full Line Ag Sales Ltd., in Saskatoon, Sask., chipping and tuning is a no go in their shop. Their dealership won't do them or promote them, and they are diligent about telling their customers that a chipped machine is no longer on warranty. Where the grey area sometimes is for customers is when that equipment is off the warranty.

"For customers, if there's no warranty, it's their piece of equipment and they can do what they want," Swystun says. "But, when they trade it back to me and I know the engine's been working harder because someone's chipped it and the horsepower's been boosted up to a level that's not right for the tractor or combine, then what are the damages on that?"

Dealers aren't always told a piece of equipment has been chipped because the original owner may not think it's relevant. Swystun points out that assessing that kind of damage on a trade in is tricky. There's often more wear and tear when something is modified beyond its original intended parameters or the computer program has been changed and an hour of use is no longer a 'true' hour of use.

"At the end of the day, chips are bad... We shouldn't ever be putting them on, we should be removing them... As dealers, we shouldn't be taking this equipment in on trade, and we shouldn't be reselling it. If it is done, someone's not looking after the best interest of their customers..." —
Jason Hintze, Sales Manager, Western Sales, Rosetown, Sask.

To Swystun's way of thinking, the chipping dealers are seeing today could be just the tip of the iceberg. He's anticipating more problems when the bulk of chipped equipment from the last 8-10 years starts showing up on trade. If an engine fails because it has been run too hot and the dealer may not know it's been done or the tune is turned back to the original specifications, he wonders who is liable for the repair.

"We don't always know it's been done until later when the equipment comes in for something else and we find out that it's been chipped," Swystun explains. "There is a lot that goes into these computer programs and these chippers are not getting their information from the manufacturer. There's more to it than just boosting up the horsepower."

The surprise of unanticipated repairs

In Jason Hintze's Saskatchewan dealerships, the trouble Swystun is expecting is already in plain sight.

"It's a bigger issue than we're aware of judging from the amount of equipment we see in our shops," says Hintze, sales manager of Western Sales. "It's becoming more and more an issue all the time."

Hintze explains that problems often show up around the 2,000-3,000 hour mark if equipment has been chipped from new. Although it can be difficult to attribute all problems to a chip, some problems their shop has seen occur appear in the transmission, rear end and final drives. He notes that jacking up the horsepower from 400-500 horsepower may seem like a small adjustment, but it puts stress on the driveline and the powertrain because the system is not designed for that kind of flow-through in the long term.

If these modifications have been rolled back to the original specifications on a trade in, or dealers aren't told equipment has been chipped, it can take several years for a problem to show up. This puts dealers and customers in a risky position because it raises the question of payment for a repair neither party is aware of. Hintze's shop currently has one tractor with a \$70,000 repair bill. Hintze believes it's 100% attributable to a chip.

"Everyone selling these chips is going to tell you how good it is, but there is long term damage that's being done to these machines," explains Hintze. "We're seeing it in the shops all the time. No one is telling you the problems that are coming up, like the \$70,000 engine job that you're going to do in a year or two."

Hintze also questions the belief, held by some, that DEF is harmful to the environment. He notes that nitrogen gas and water, which come out of the exhaust, are harmless.

"I'm not sure how some companies can advertise removing these DEF systems because the federal government says it's illegal... The problem is that the federal government has made it the provincial government's responsibility to police it, and the provinces say they don't have the manpower to police it..."

— Kevin Rossler, Sales manager, Markusson New Holland, Emerald Park, Sask.

How can dealers protect themselves and their customers when it comes to the issue of chipping and tuning? Hintze believes that making buyers aware of the chipping and tuning issue is the first line of defense. Hintze's dealerships also use a WEDA waiver form releasing the dealership from chipping liability.

Additionally, Hintze proposes 3 important questions that owners of farm equipment should ask anyone wanting to sell them chipping or tuning and claiming these services will improve their performance.

1. Does this affect my manufacturer's warranty?

In all cases, and with all manufacturers of equipment, changing a computer program, adding a chip or tuning the equipment's components voids the manufacturer's warranty. This includes the warranty on emissions systems, and in the case of emissions systems, modifying them is illegal in Canada.

2. Does this affect the service I can get from my dealership?

In many cases, dealers won't — or can't — work on chipped equipment because modifications won't allow the dealer's computer system to accurately read the modified system. If the issue directly relates to the chipping or tuning, the customer may need to go back to the chipper for the repair. In other cases, chipped or tuned equipment may need to be put back to a factory reset or have equipment reinstalled (with costs and time delays involved) before repair work can be done.

3. What are the long term effects of this on my engine and other parts?

Today's farm equipment is highly engineered and calibrated for specific agricultural uses. When you tinker with a \$500,000 piece of specialized equipment and it is modified to perform beyond its original designed use, that can put undue stress on many components in the machine.

Hintze's final word on the issue is simple: if it seems too good to be true, it usually is.

"At the end of the day, chips are bad," Hintze says. "We shouldn't ever be putting them on, we should be removing them. Our message to customers should be clear: we can't deal with you if you chip your machines. As dealers, we shouldn't be taking this equipment in on trade and we shouldn't be reselling it. If it is done, someone's not looking after the best interest of their customers."

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